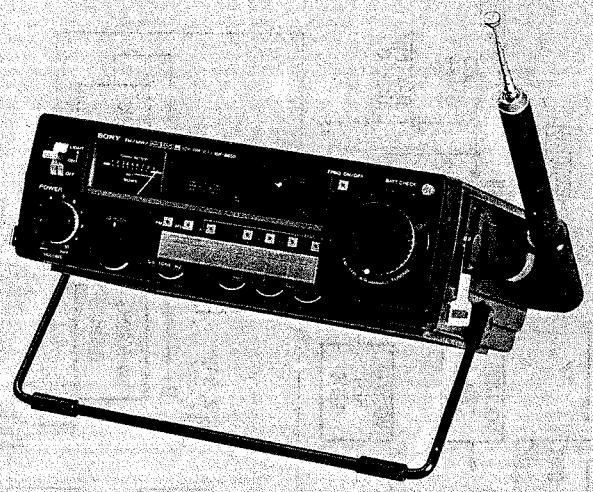
ICF-8650

US Model
AEP Model
E Model



FM/MW/AIR 3 BAND RECEIVER

SPECIFICATIONS

Antennas: AIR/FM: Telescopic antenna, external antenna terminals
MW: Built-in ferrite-rod antenna

Frequency Range: AIR 118 – 136 MHz
FM 76 – 108 MHz
MW 530 – 1,605 kHz

Speaker: Approx. 9.2cm (3½ inches) dia.

Power Output: 1,000 mW (at 10% harmonic distortion)

Outputs: Recording (minijack)
Earphone (minijack)

Power Requirements: 12 V dc, eight batteries size D (IEC designation R20)
120 V ac, 60 Hz with optional Sony AC Power Adaptor AC-12 (US model)
110, 127, 220, or 240 V ac, 50 Hz with optional Sony AC Power Adapter AC-122 (AEP model)
110, 120, 220 or 240 V ac, 50/60 Hz with optional Sony AC Power Adapter AC-122 (E model)
12 V car battery with optional Sony Car Battery Cord DCC-9

Power Consumption: 8.7 W ac with Sony AC Power Adaptor AC-12 (US model)

Dimensions: Approx. 255(w) x 215(h) x 82(d) mm $10^{1}/_{8}$(w) x 8½(h) x 3¼(d) inches including projecting parts and controls not including Telescopic Antenna

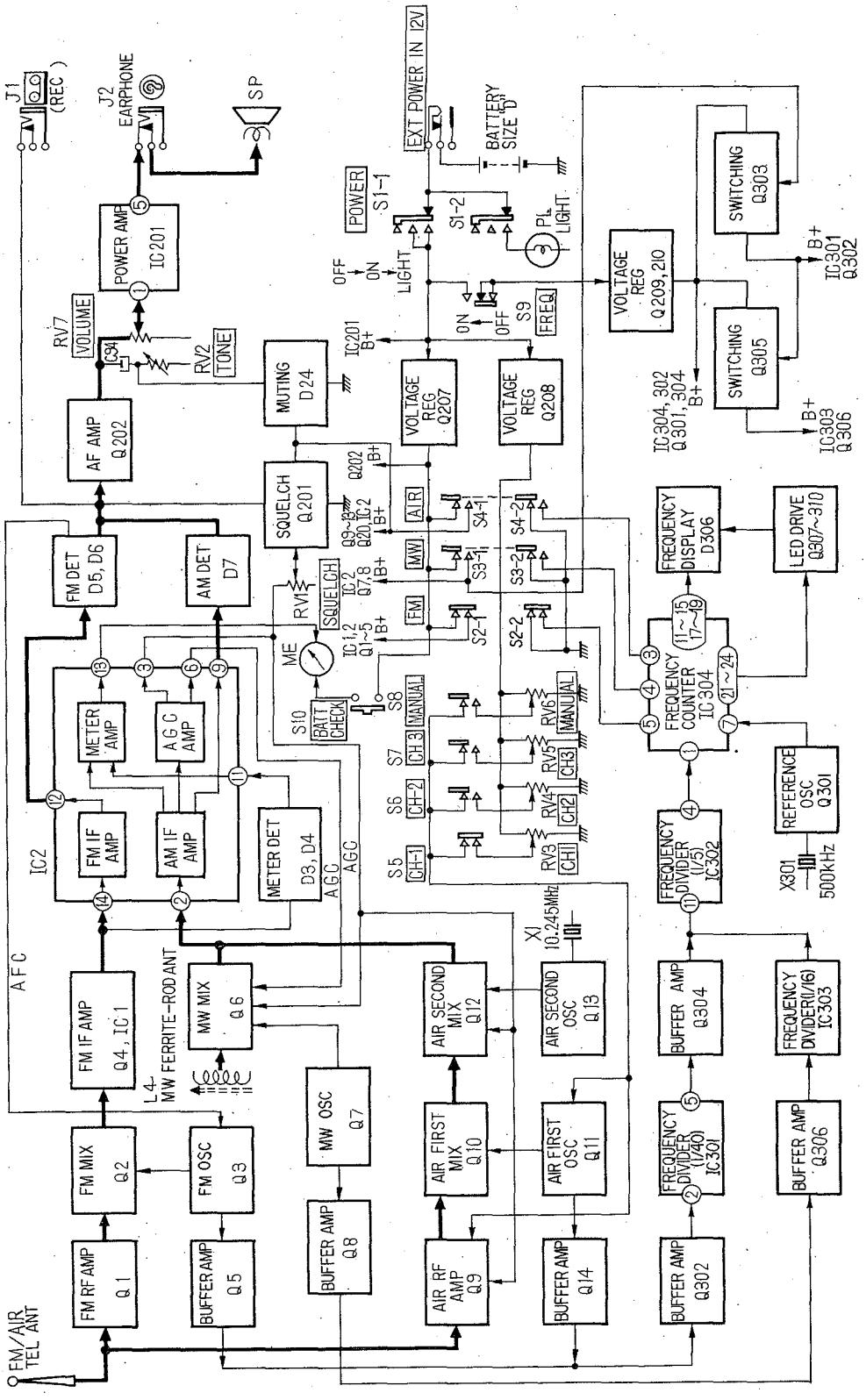
Weight: 3.2 kg, 7 lb 1 oz, including batteries

SONY®
SERVICE MANUAL

1233

SECTION 1
OUTLINE

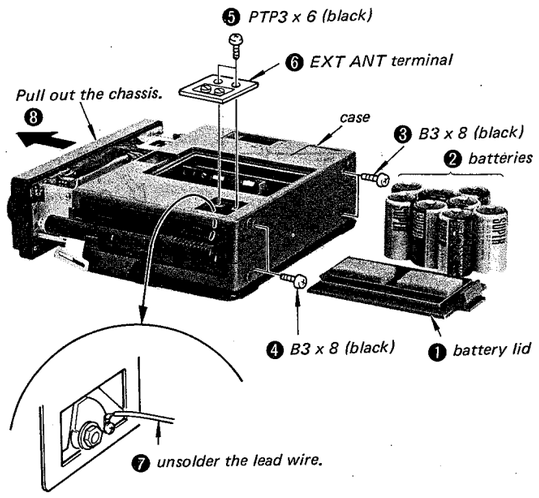
1-1. BLOCK DIAGRAM



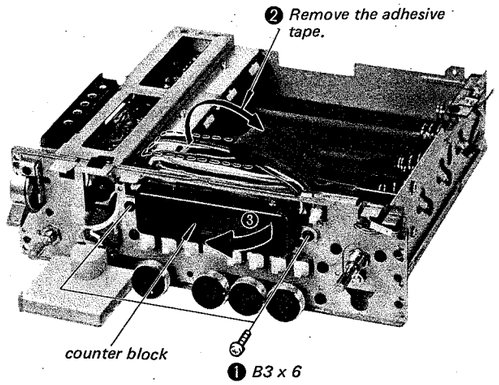
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

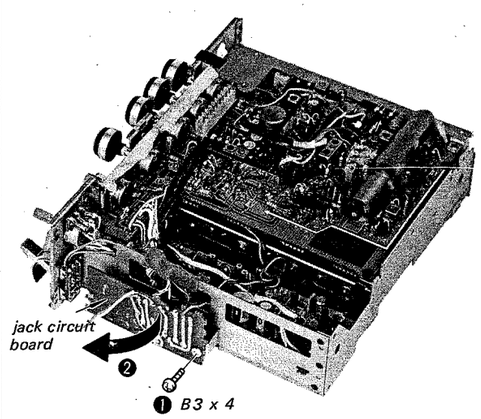
CASE REMOVAL



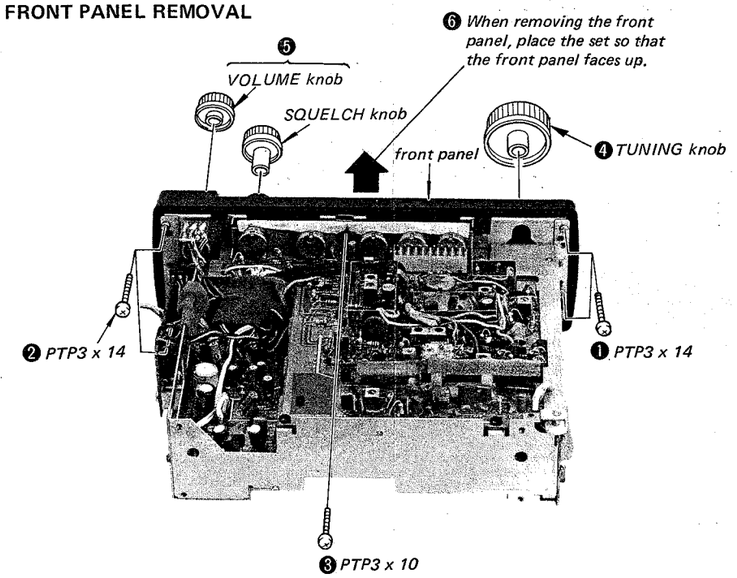
COUNTER BLOCK REMOVAL



JACK CIRCUIT BOARD REMOVAL

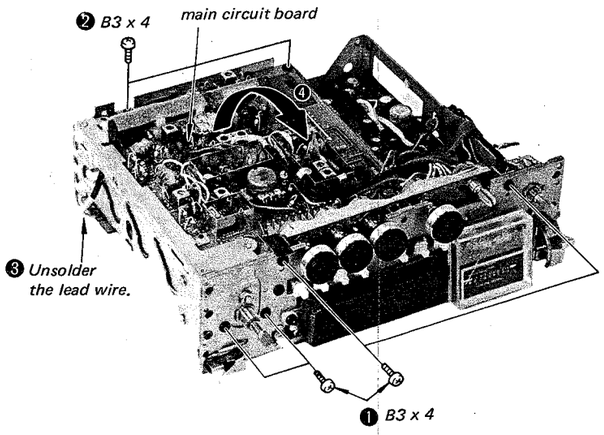


FRONT PANEL REMOVAL

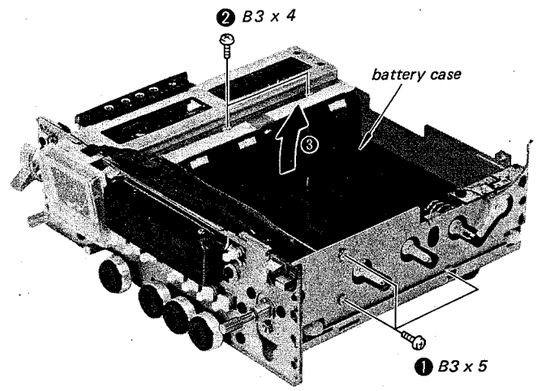

❻ When removing the front panel, place the set so that the front panel faces up.
❺
VOLUME knob
SQUELCH knob
front panel
❹ TUNING knob
❷ PTP3 x 14
❶ PTP3 x 14
❸ PTP3 x 10

MAIN CIRCUIT BOARD REMOVAL

Note:
The conductor side of the main board can be checked by only removing the battery case.



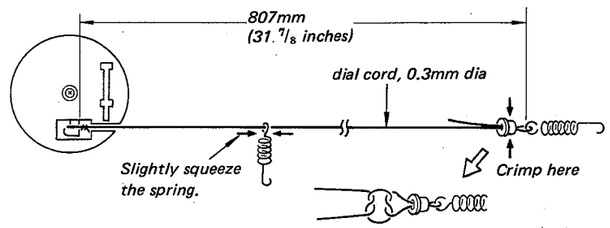
BATTERY CASE REMOVAL



DIAL CORD STRINGING
• See page 6.

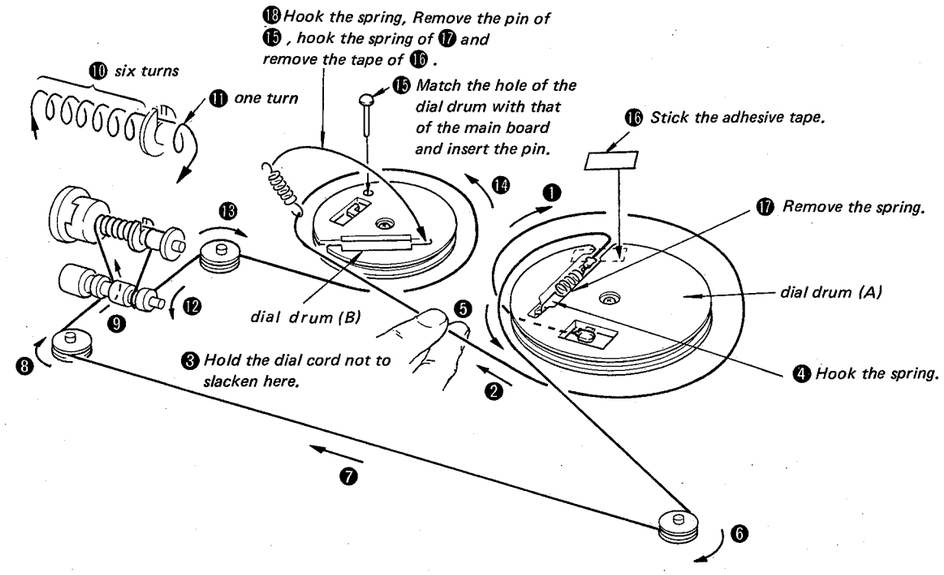
DIAL CORD STRINGING

1) Dial Cord Preparation



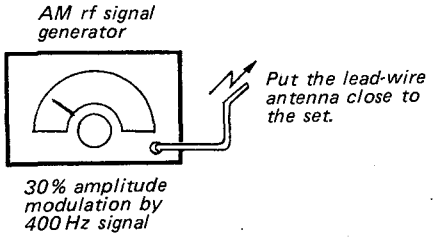
2) Stringing

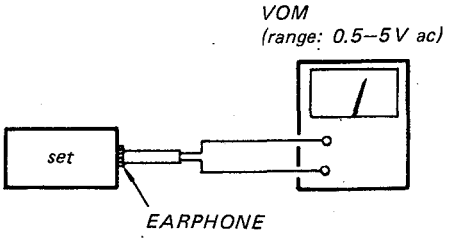
Turn the dial drum (A) fully counterclockwise and position the dial drum (B) as shown below.


⓲ Hook the spring, Remove the pin of ⓯, hook the spring of ⓱ and remove the tape of ⓰.
⓯ Match the hole of the dial drum with that of the main board and insert the pin.
⓰ Stick the adhesive tape.
⓾ six turns
⓫ one turn
⓱ Remove the spring.
dial drum (A)
dial drum (B)
❸ Hold the dial cord not to slacken here.
❹ Hook the spring.

SECTION 3
ADJUSTMENTS

• AM SECTION



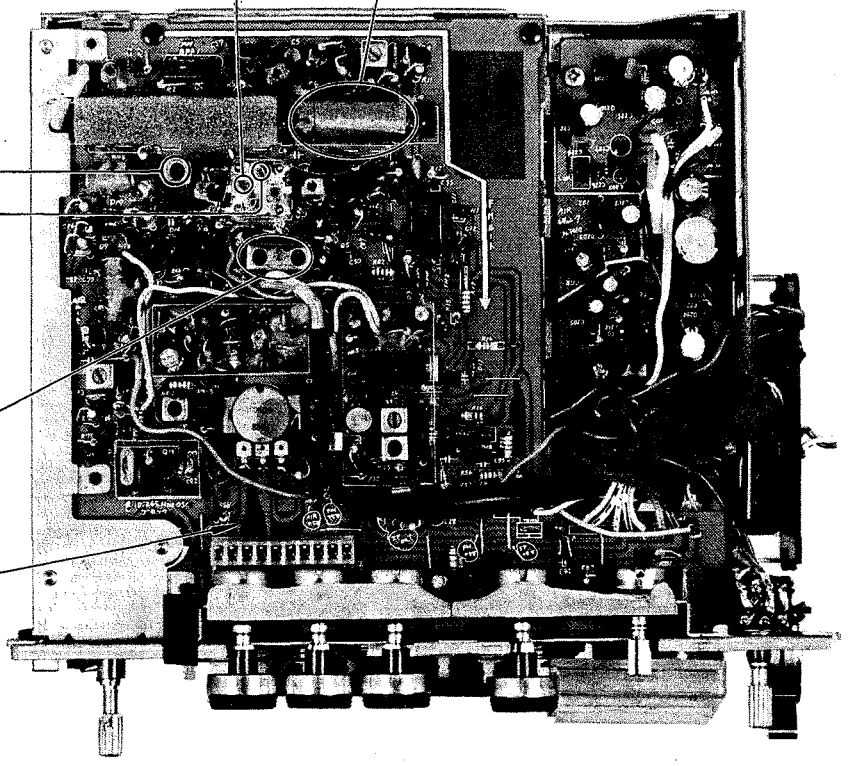


- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

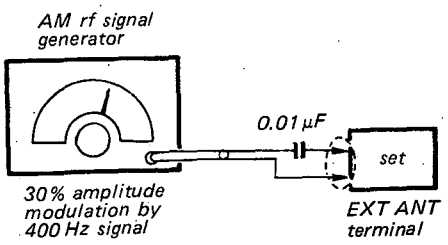
MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM.	
1,400kHz	620kHz
CT3	L4

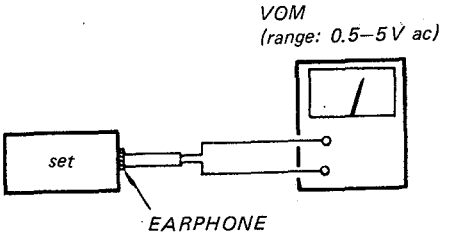
MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for the frequency shown below on frequency counter.	
520kHz	L5
1,680kHz	CT4

MW IF ALIGNMENT
Adjust for a maximum reading on VOM.
455kHz
CFT



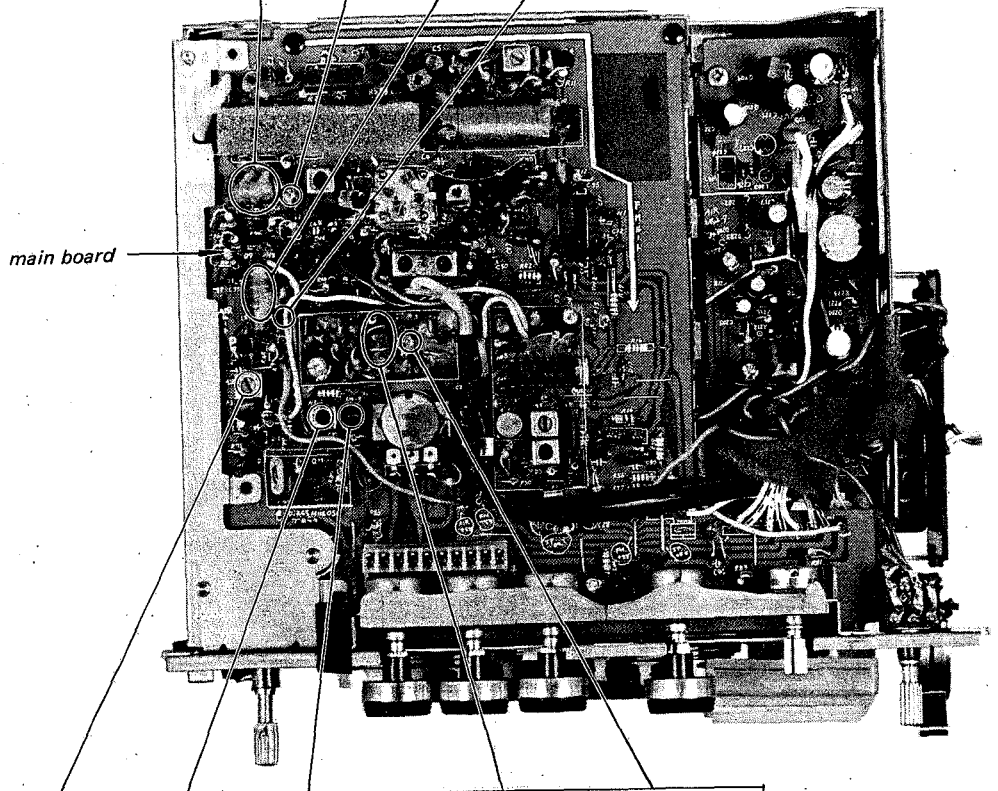
• AIR SECTION





- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

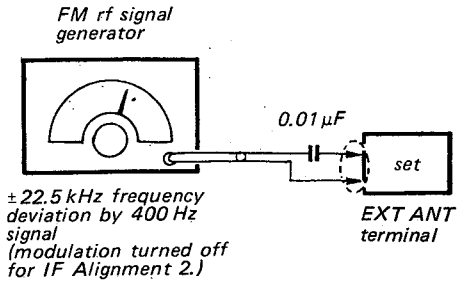
AIR TRACKING ADJUSTMENT			
Adjust for a maximum reading on VOM.			
118MHz	136MHz	118MHz	136MHz
L6	CT5	L8	CT6

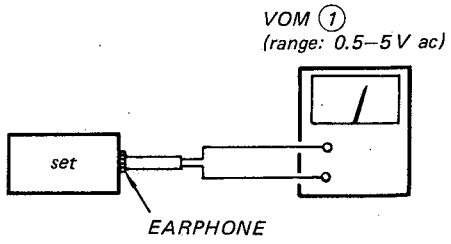


IFT AIR1	IFT AIR2	IFT AIR3
10.7MHz		
Adjust for a maximum reading on VOM.		
AIR IF ALIGNMENT		

L9	CT7
116MHz	139MHz
Adjust for the frequency shown above on frequency counter.	
AIR FREQUENCY COVERAGE ADJUSTMENT	

• FM SECTION


FM rf signal generator
0.01 μF
set
±22.5 kHz frequency deviation by 400 Hz signal (modulation turned off for IF Alignment 2.)
EXT ANT terminal

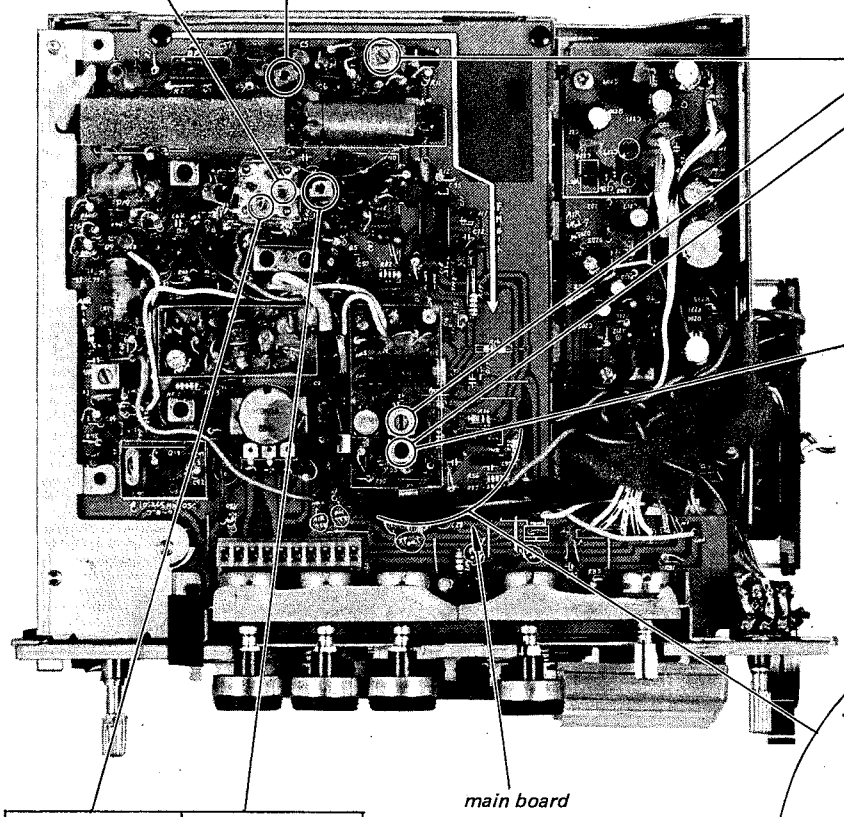


• Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

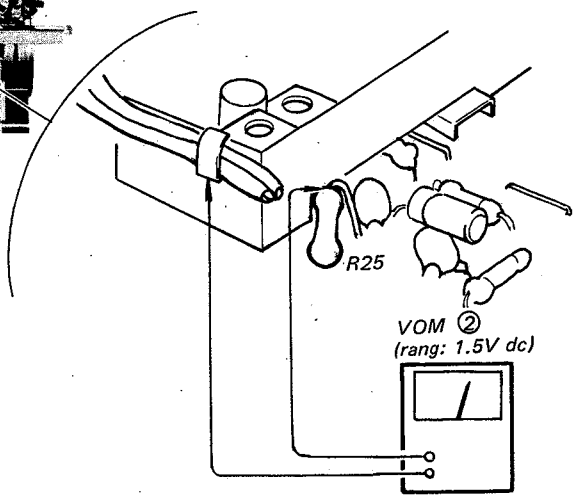
FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
109MHz	75MHz
CT1	L2

FM IF ALIGNMENT 1	
Adjust for a maximum reading on VOM ①.	
IFT F1	10.7MHz with modulation
IFT F2	
IFT F3	

FM IF ALIGNMENT 2
Adjust for 0V dc reading on VOM ②.
10.7MHz with no modulation
IFT F3



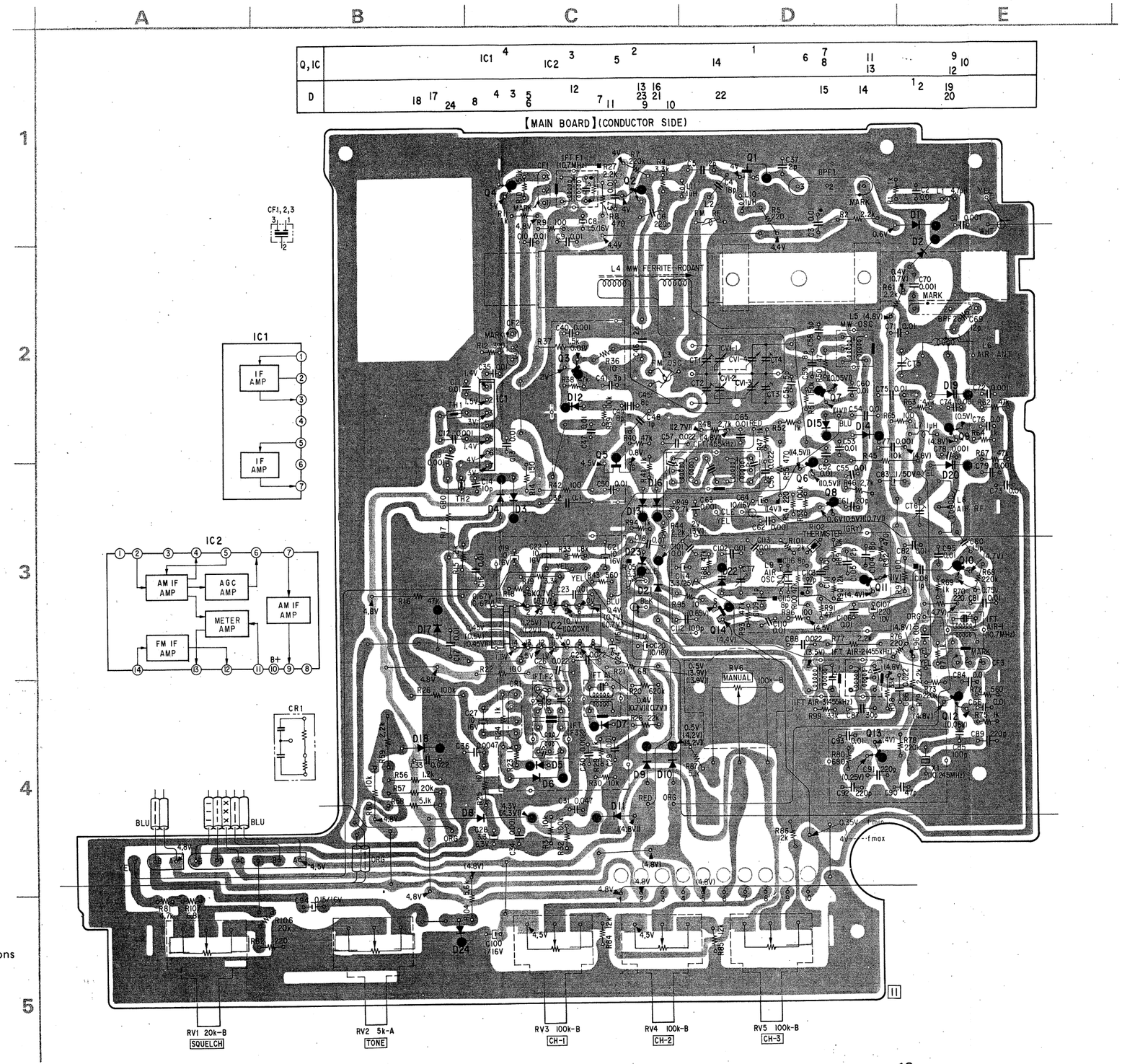
CT2	L3
109MHz	75MHz
Adjust for the frequency shown above on frequency counter.	
FM FREQUENCY COVERAGE ADJUSTMENT	



SECTION 4
DIAGRAMS

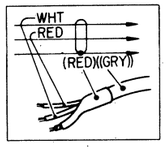
4-1. MOUNTING DIAGRAM

— Conductor Side —



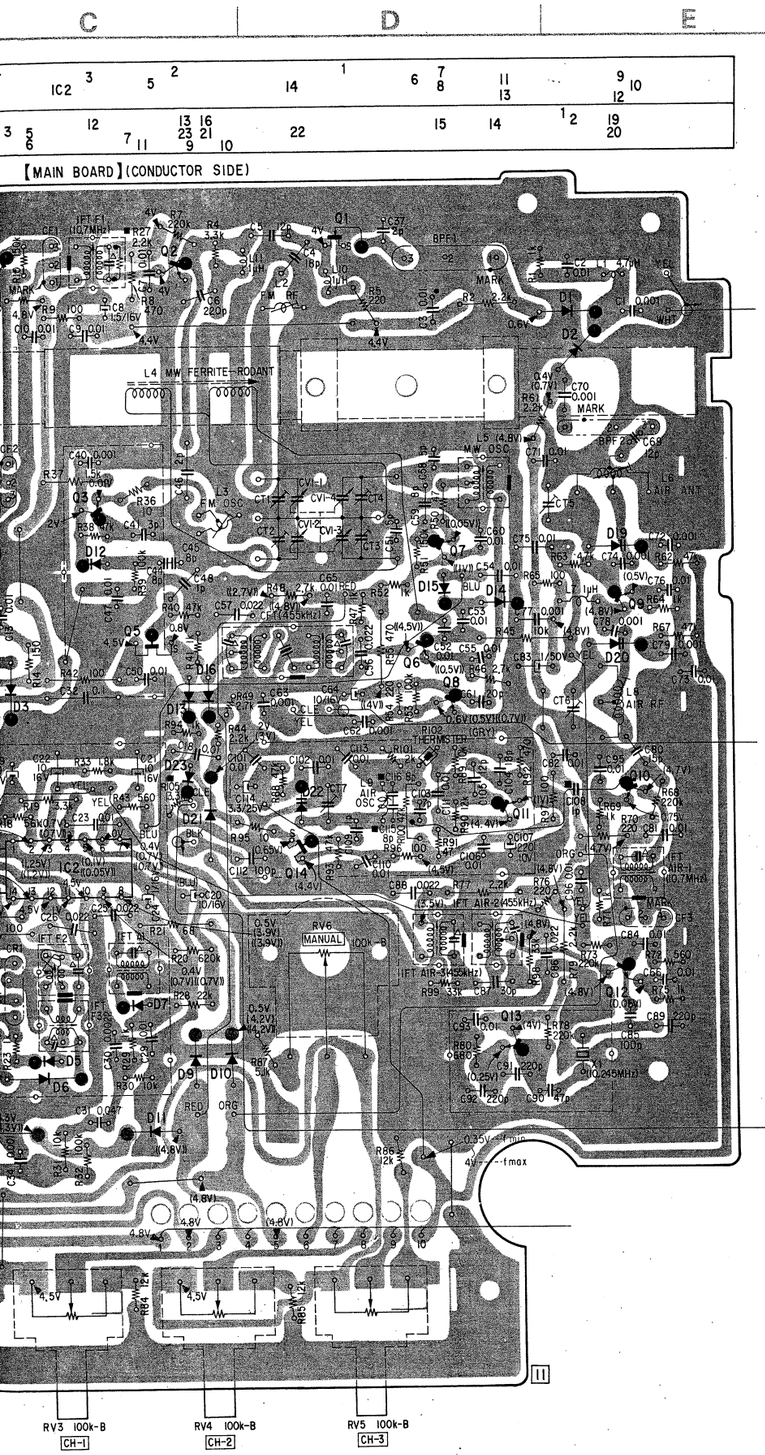
Note:

- Color code of sleeving over the end of the jacket.



- : B + pattern

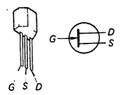
- Readings are taken under no-signal (detuned) conditions with a VOM (20 kΩ/V).
  ( ) : AIR
  (( )) : MW
  no mark: FM



Replacement Semiconductors

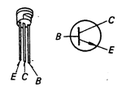
For replacement use semiconductors except in ( ).

Q1 : 2SK42-2 (2SK42)

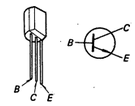


Q2, 3
Q6~8
Q11~13
Q304, 306 } **2SC930 (2SC930C)**

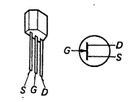
Q9, 10
Q302 } **2SC668 (2SC668C)**



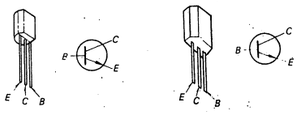
Q4 : 2SC710-14 (2SC710)



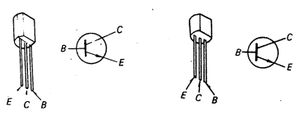
Q5, 14 : 2SK23A-824 (2SK23A)



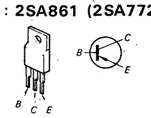
Q201, 202 : 2SC1364 (2SC1633)



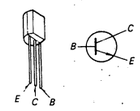
Q207, 208
Q301 } **2SC1364** (2SC1634)



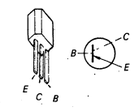
Q209 : 2SA861 (2SA772)



Q210
Q307~310 } **2SC1364**

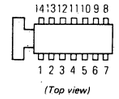


Q303, 305 :2SA1027R (2SA677)



IC1 : CX161A (CX161)

IC2 : CX162



IC201 : μPC575C (μPC575C2)

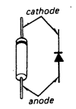
IC301 : μPB551C

IC302 : SN74LS290N
IC303 : SN74LS293N

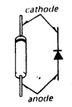
IC304 : M54825P

D1~4
D8~11
D14~18 } **1S1555**
D21, 24
D203

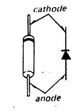
D5, 6, 13 : 1T261
D7, 23 : 1T261 (1T23)
D205 : RD4.7E (RD4.7E-B)



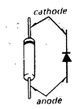
D12 : 1S2139C (SD115)



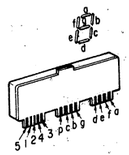
D19, 20, 22 : 1S2139C (1S2139B)



D201, 202, 204: RD5.6E (D5Z2.6U)

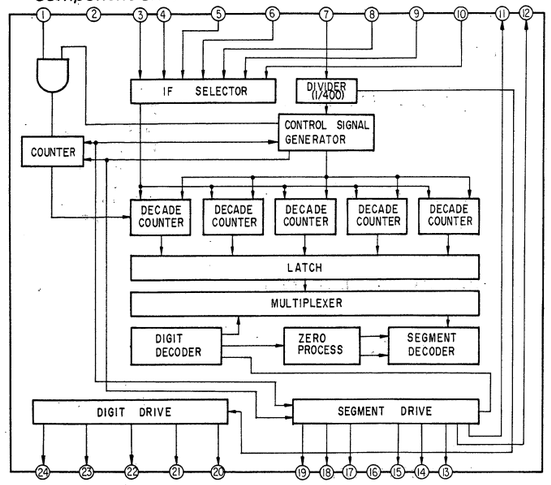


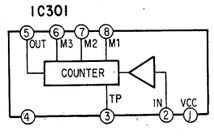
D306 : SL1512 (SL1512-10)

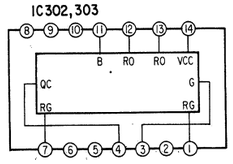


4-2. MOUNTING DIAGRAM

– Component Side –

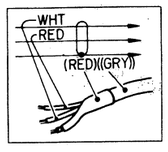






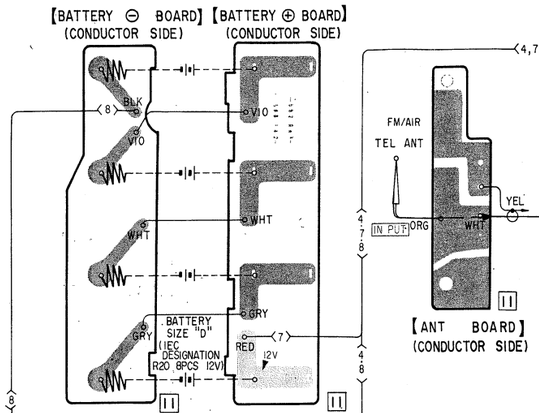
Note:

- Color code of sleeving over the end of the jacket.

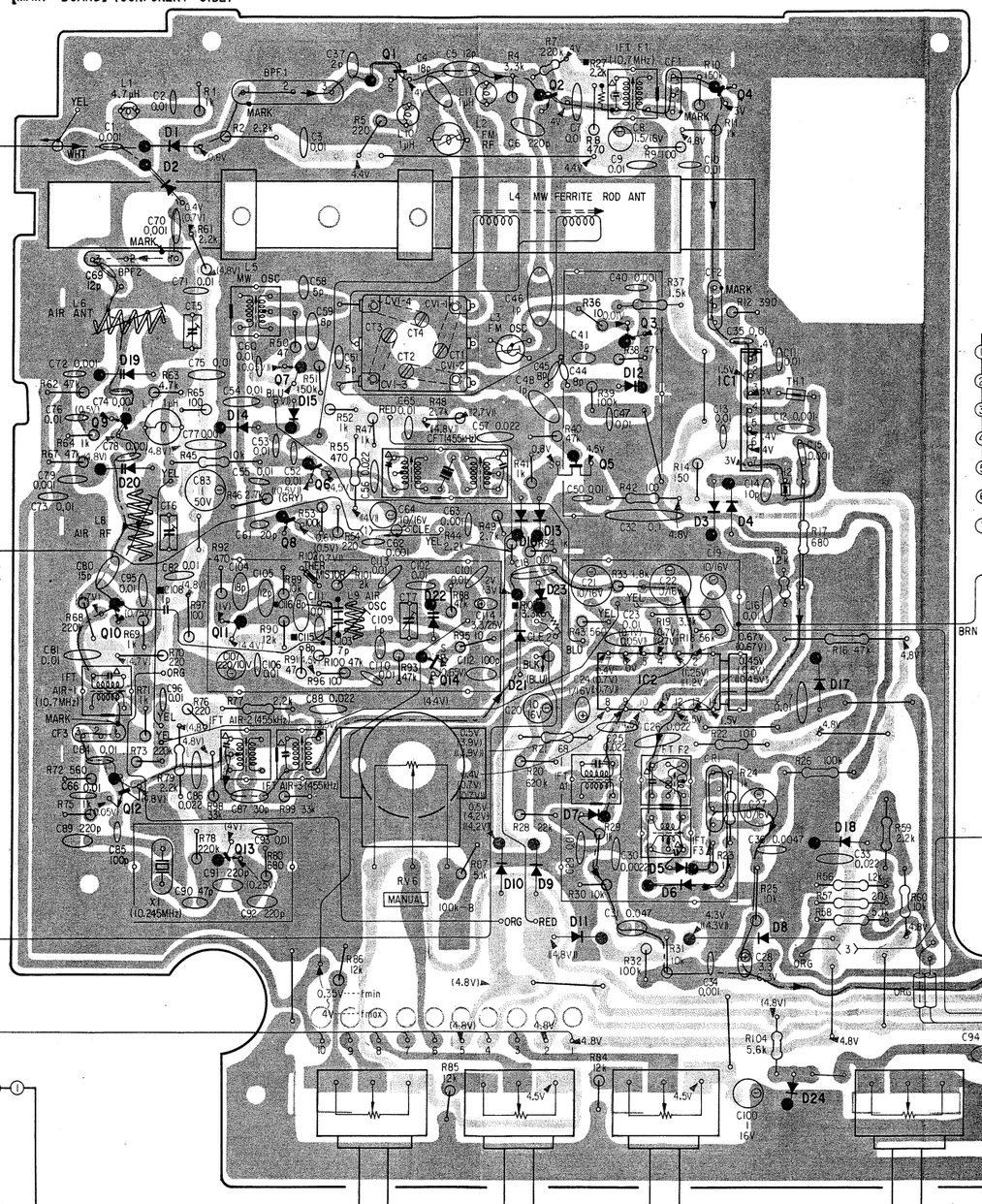


- ▒▒▒ : B + pattern
- Signal Path
  - ——▶ : FM signal
  - —·—▶ : AIR signal

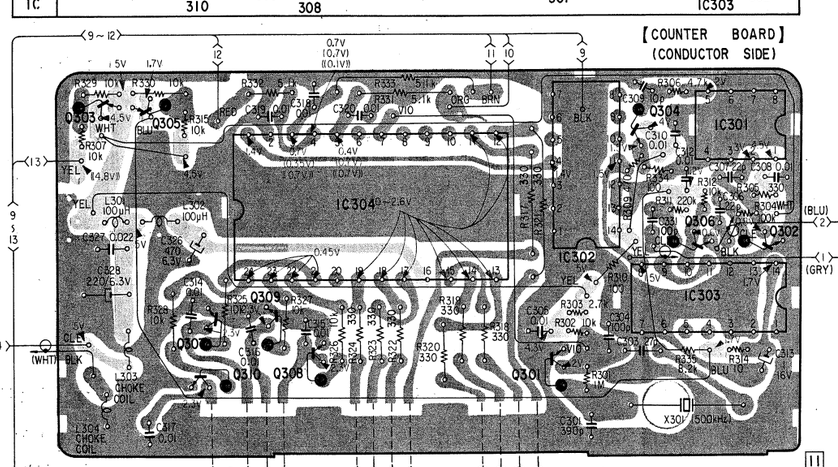
- Readings are taken under no-signal (detuned) conditions with a VOM (20 kΩ/V).
  ( ) : AIR
  (( )) : MW
  no mark: FM

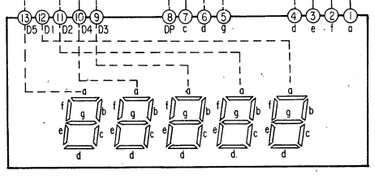


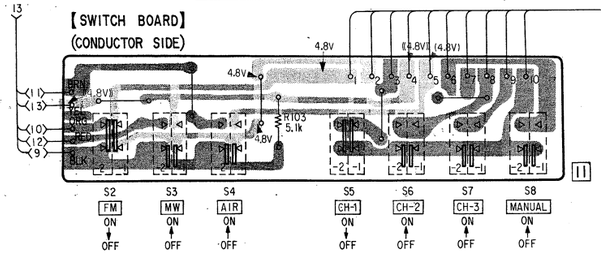
Q, IC	10 9 12	11 13	7 6 8	1 14	2 5 IC2	3 4 IC1
D	19 20 1 2	14	15	22	16 13 21 23 10 9 7 11	12	5 6 3,4 8	17 18 24

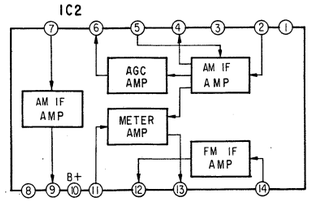


Q IC	303 305 307 310 309 IC304 308	IC302 301 304	IC301 306 IC303 302









Q, IC	10 9 12	11 13	7 6 8	1 14	2 5	3 IC2	4 IC1	208 210 209 IC201 201 202	207
D	19 20	2	14	15	22	16 13 21 23 10 9	7 11	12	5 6 3,4 8 24	17 18	205	202 203	201	204

【MAIN BOARD】(CONPONENT SIDE)

【AF BOARD】(CONPONENT SIDE)

【JACK BOARD】
(CONDUCTOR SIDE)

【POWER SWITCH BOARD】
(CONDUCTOR SIDE)

【BATTERY CHECK BOARD】
(CONPONENT SIDE)

【COUNTER ON/OFF BOARD】
(CONDUCTOR SIDE)

【VOLUME BOARD】
(CONDUCTOR SIDE)

【ANT BOARD】
(CONDUCTOR SIDE)

【IC301 BOARD】
(CONDUCTOR SIDE)

L4 MW FERRITE ROD ANT

IC1

IC201

CF1,2,3

CR1

METER

S1 POWER OFF ON LIGHT

S9 FREQ ON OFF

S10 BATT CHECK (PUSH ON)

J1 (REC)

J2 (EARPHONE)

J3 EXT POWER IN 12V

SP 8Ω

PL LIGHT

RV1 20k-B SQUELCH

RV2 5k-A TONE

RV3 100k-B CH-1

RV4 100k-B CH-2

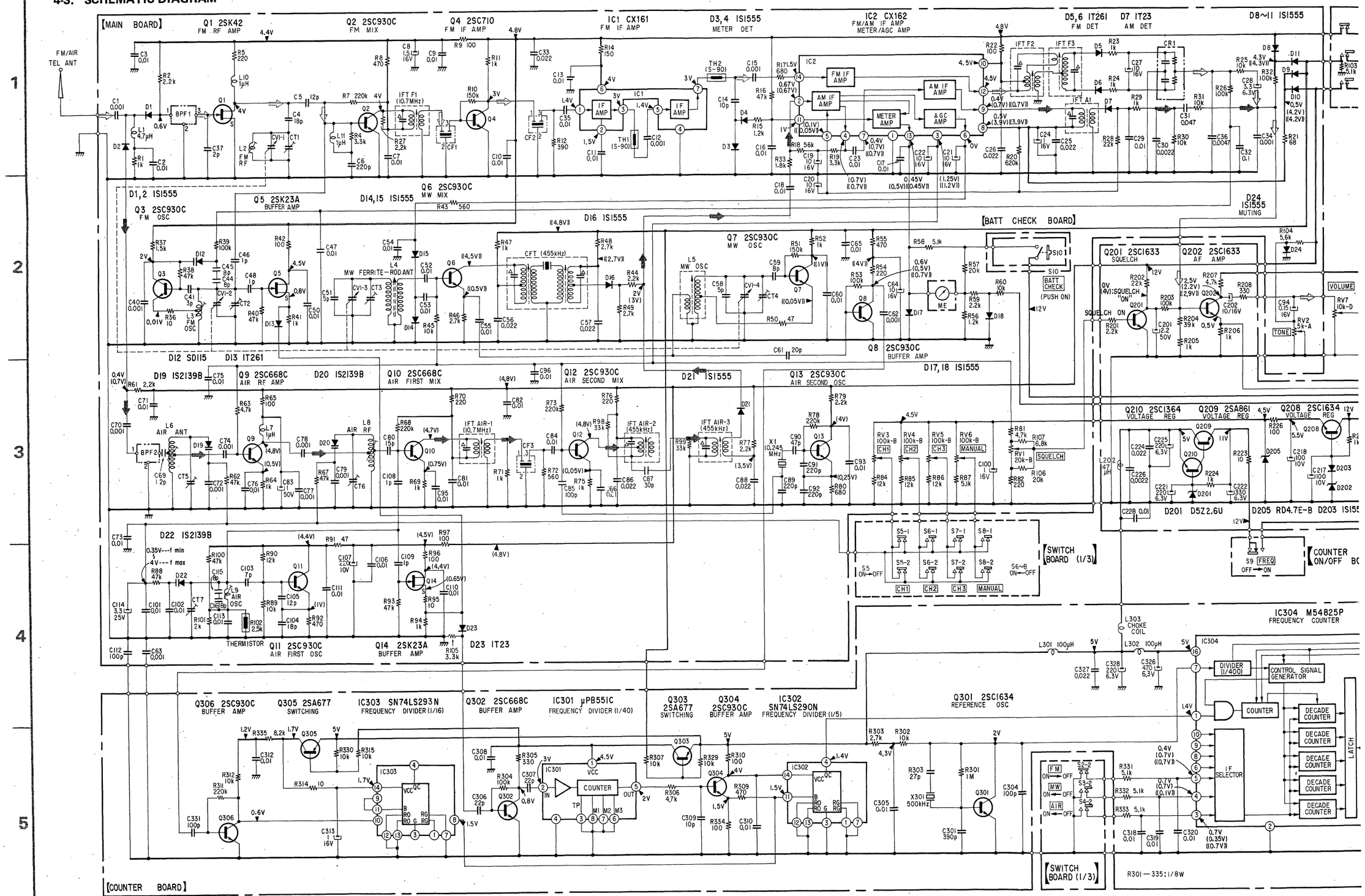
RV5 100k-B CH-3

RV6 100k-B MANUAL

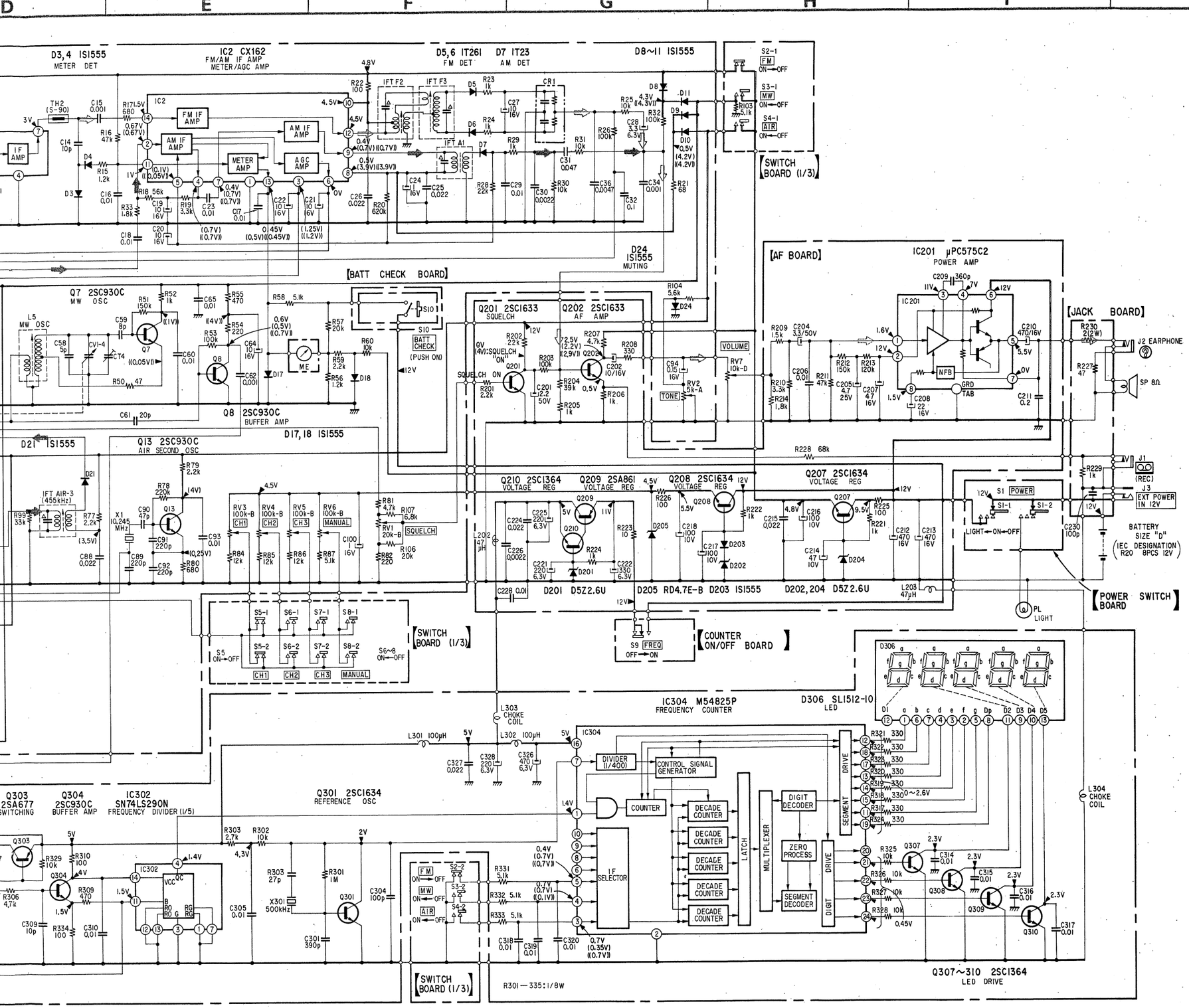
RV7 10k-D VOLUME

AGC AMP
AM IF AMP
METER AMP
FM IF AMP

4-3. SCHEMATIC DIAGRAM



ICF-8650

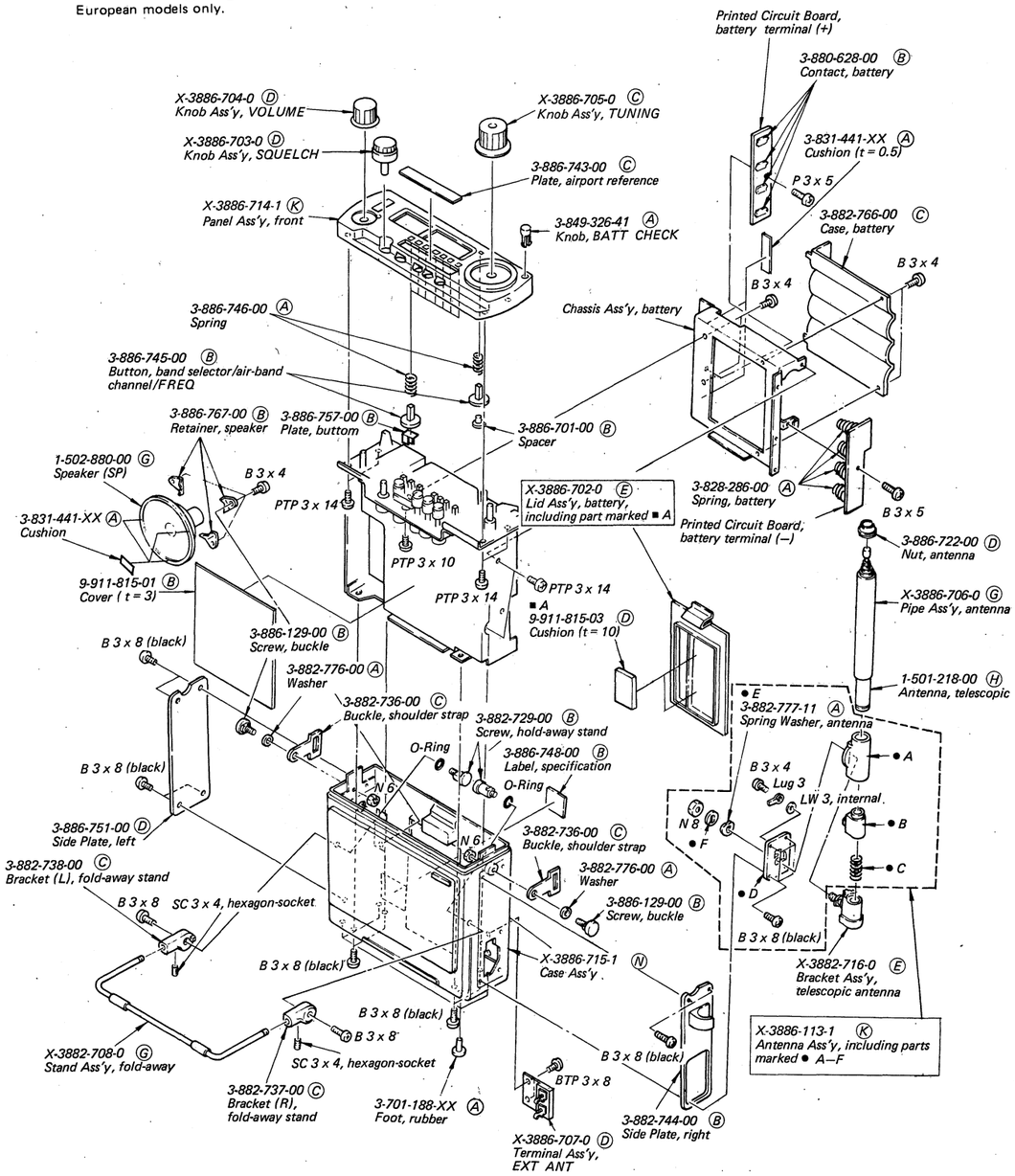


- All capacitors are in μF unless otherwise noted. pF : μμF
  50 WV or less are not indicated except for electrolytics.
- All resistors are in ohms, ¼W unless otherwise noted.
  kΩ : 1000 Ω : MΩ : 1000 kΩ
- △ : internal component.
- ▬ : B + bus.
- ▭ : panel designation.
- Readings are taken under no-signal (detuned) conditions with a VOM (20 kΩ/V)
  ( ) : AIR
  (( )) : MW
  no mark: FM
- Voltage variations may be noted due to normal production tolerances.
- Signal path
  ⇨ : FM signal
  ➡ : AIR signal
- Switch

Ref. No.	Switch	Position
S1	POWER	OFF
S2	FM	ON
S3	MW	OFF
S4	AIR	OFF
S5	CH1	OFF
S6	CH2	OFF
S7	CH3	OFF
S8	MANUAL	OFF
S9	FREQ	OFF
S10	BATT CHECK	OFF

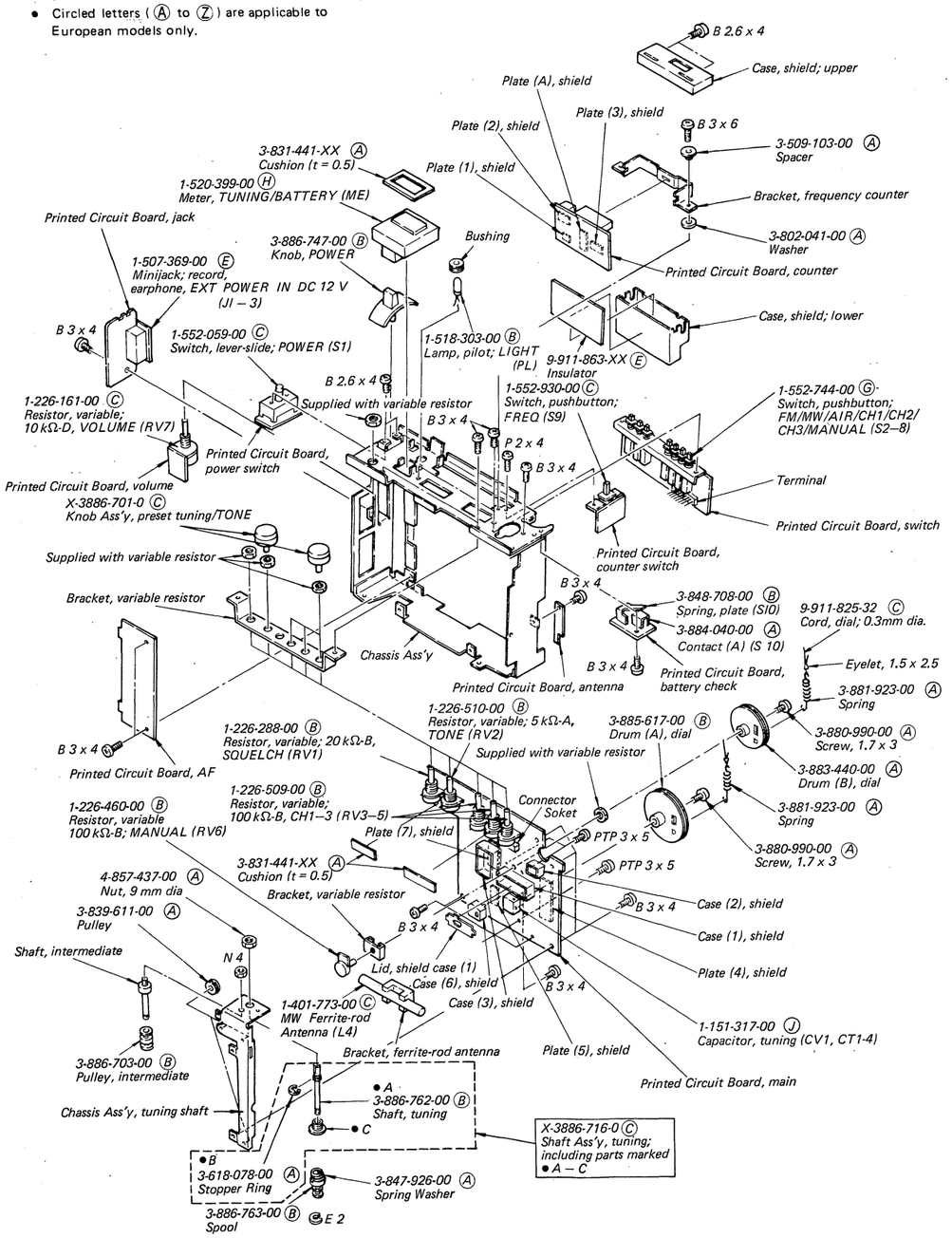
SECTION 5
EXPLODED VIEWS

5-1. **Note:**
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.


X-3886-704-0 (D) Knob Ass'y, VOLUME
X-3886-703-0 (D) Knob Ass'y, SQUELCH
X-3886-714-1 (K) Panel Ass'y, front
X-3886-705-0 (C) Knob Ass'y, TUNING
3-886-743-00 (C) Plate, airport reference
3-849-326-41 (A) Knob, BATT CHECK
Printed Circuit Board, battery terminal (+)
3-880-628-00 (B) Contact, battery
3-831-441-XX (A) Cushion (t = 0.5)
P 3 x 5
3-882-766-00 (C) Case, battery
B 3 x 4
Chassis Ass'y, battery
3-886-746-00 (A) Spring
3-886-745-00 (B) Button, band selector/air-band channel/FREQ
3-886-767-00 (B) Retainer, speaker
3-886-757-00 (B) Plate, buttom
3-886-701-00 (B) Spacer
1-502-880-00 (G) Speaker (SP)
B 3 x 4
PTP 3 x 14
X-3886-702-0 (E) Lid Ass'y, battery, including part marked ■ A
3-828-286-00 (A) Spring, battery
Printed Circuit Board, battery terminal (–)
B 3 x 5
3-886-722-00 (D) Nut, antenna
X-3886-706-0 (G) Pipe Ass'y, antenna
1-501-218-00 (H) Antenna, telescopic
3-831-441-XX (A) Cushion
9-911-815-01 (B) Cover (t = 3)
PTP 3 x 10
PTP 3 x 14
PTP 3 x 14
■ A
9-911-815-03 (D) Cushion (t = 10)
B 3 x 8 (black)
3-886-129-00 (B) Screw, buckle
3-882-776-00 (A) Washer
3-882-736-00 (C) Buckle, shoulder strap
3-882-729-00 (B) Screw, hold-away stand
O-Ring
3-886-748-00 (B) Label, specification
O-Ring
B 3 x 8 (black)
3-886-751-00 (D) Side Plate, left
N 6
N 6
3-882-736-00 (C) Buckle, shoulder strap
3-882-776-00 (A) Washer
3-886-129-00 (B) Screw, buckle
3-882-738-00 (C) Bracket (L), fold-away stand
B 3 x 8
SC 3 x 4, hexagon-socket
B 3 x 8 (black)
X-3886-715-1 (N) Case Ass'y
B 3 x 8 (black)
B 3 x 8
B 3 x 8 (black)
X-3882-708-0 (G) Stand Ass'y, fold-away
SC 3 x 4, hexagon-socket
3-882-737-00 (C) Bracket (R), fold-away stand
3-701-188-XX (A) Foot, rubber
BTP 3 x 8
X-3886-707-0 (D) Terminal Ass'y, EXT ANT
3-882-744-00 (B) Side Plate, right
• E
3-882-777-11 (A) Spring Washer, antenna
• A
B 3 x 4
Lug 3
LW 3, internal
• B
N 8
• F
• C
• D
B 3 x 8 (black)
X-3882-716-0 (E) Bracket Ass'y, telescopic antenna
X-3886-113-1 (K) Antenna Ass'y, including parts marked • A–F

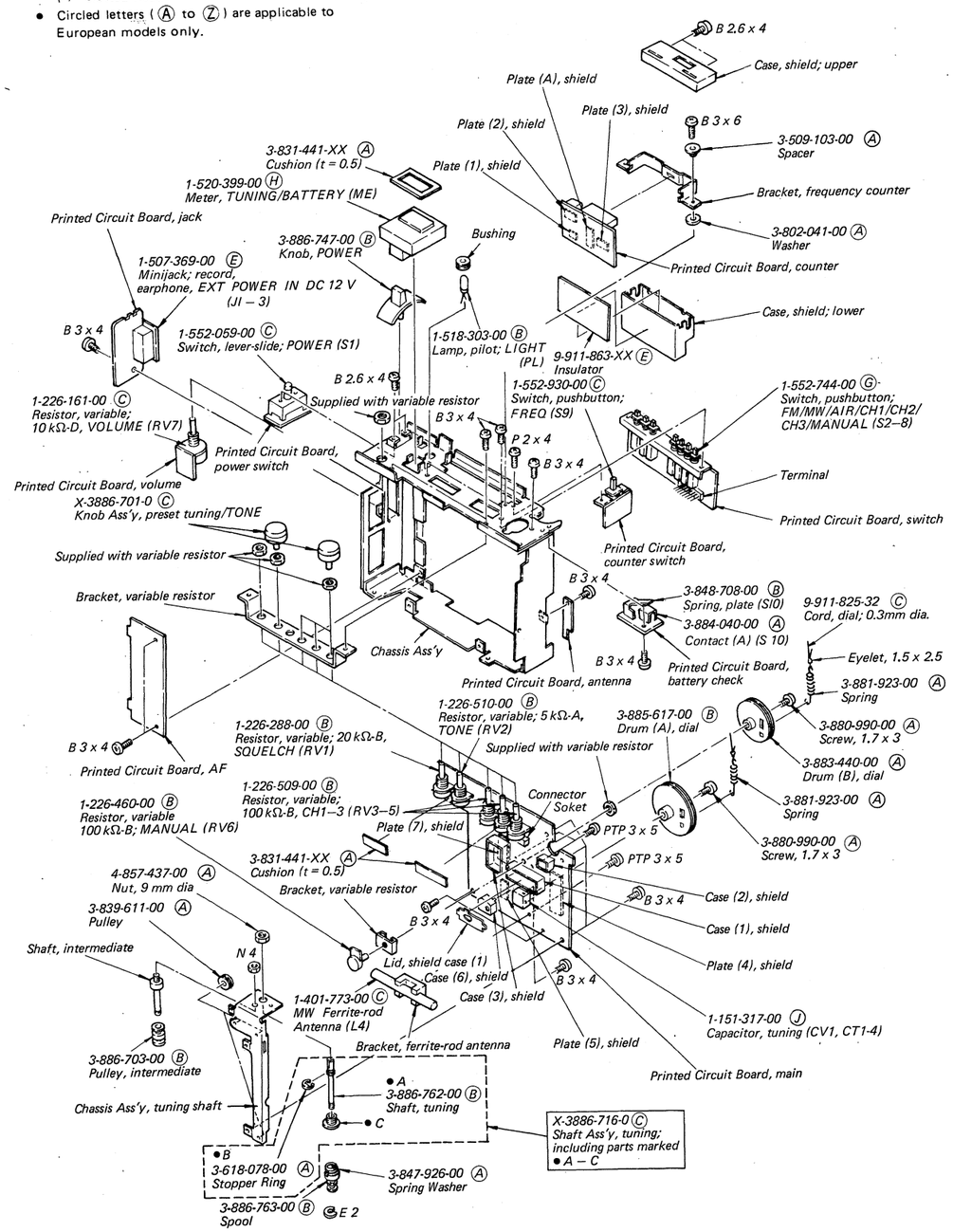
5-2. **Note:**
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. i


B 2.6 x 4
Case, shield; upper
Plate (A), shield
Plate (3), shield
Plate (2), shield
B 3 x 6
3-509-103-00 (A) Spacer
3-831-441-XX (A) Cushion (t = 0.5)
Plate (1), shield
Bracket, frequency counter
1-520-399-00 (H) Meter, TUNING/BATTERY (ME)
Printed Circuit Board, jack
3-886-747-00 (B) Knob, POWER
Bushing
3-802-041-00 (A) Washer
Printed Circuit Board, counter
1-507-369-00 (E) Minijack; record, earphone, EXT POWER IN DC 12 V (JI – 3)
B 3 x 4
1-552-059-00 (C) Switch, lever-slide; POWER (S1)
1-518-303-00 (B) Lamp, pilot; LIGHT (PL)
9-911-863-XX (E) Insulator
Case, shield; lower
B 2.6 x 4
Supplied with variable resistor
1-552-930-00 (C) Switch, pushbutton; FREQ (S9)
1-552-744-00 (G) Switch, pushbutton; FM/MW/AIR/CH1/CH2/ CH3/MANUAL (S2–8)
1-226-161-00 (C) Resistor, variable; 10 kΩ-D, VOLUME (RV7)
B 3 x 4
P 2 x 4
B 3 x 4
Printed Circuit Board, power switch
Terminal
Printed Circuit Board, volume
X-3886-701-0 (C) Knob Ass'y, preset tuning/TONE
Printed Circuit Board, switch
Supplied with variable resistor
Printed Circuit Board, counter switch
B 3 x 4
Bracket, variable resistor
3-848-708-00 (B) Spring, plate (SI0)
3-884-040-00 (A) Contact (A) (S 10)
9-911-825-32 (C) Cord, dial; 0.3mm dia.
Chassis Ass'y
B 3 x 4
Printed Circuit Board, antenna
Printed Circuit Board, battery check
Eyelet, 1.5 x 2.5
3-881-923-00 (A) Spring
1-226-510-00 (B) Resistor, variable; 5 kΩ-A, TONE (RV2)
3-885-617-00 (B) Drum (A), dial
3-880-990-00 (A) Screw, 1.7 x 3
Supplied with variable resistor
3-883-440-00 (A) Drum (B), dial
B 3 x 4
Printed Circuit Board, AF
1-226-288-00 (B) Resistor, variable; 20 kΩ-B, SQUELCH (RV1)
1-226-509-00 (B) Resistor, variable; 100 kΩ-B, CH1–3 (RV3–5)
Connector Soket
3-881-923-00 (A) Spring
1-226-460-00 (B) Resistor, variable 100 kΩ-B; MANUAL (RV6)
Plate (7), shield
PTP 3 x 5
PTP 3 x 5
3-880-990-00 (A) Screw, 1.7 x 3
3-831-441-XX (A) Cushion (t = 0.5)
4-857-437-00 (A) Nut, 9 mm dia
Bracket, variable resistor
B 3 x 4
Case (2), shield
3-839-611-00 (A) Pulley
B 3 x 4
Case (1), shield
Shaft, intermediate
N 4
Lid, shield case (1)
Case (6), shield
Plate (4), shield
B 3 x 4
1-401-773-00 (C) MW Ferrite-rod Antenna (L4)
Case (3), shield
1-151-317-00 (J) Capacitor, tuning (CV1, CT1-4)
3-886-703-00 (B) Pulley, intermediate
Bracket, ferrite-rod antenna
Plate (5), shield
Printed Circuit Board, main
• A
3-886-762-00 (B) Shaft, tuning
Chassis Ass'y, tuning shaft
• C
X-3886-716-0 (C) Shaft Ass'y, tuning; including parts marked • A – C
• B
3-618-078-00 (A) Stopper Ring
3-847-926-00 (A) Spring Washer
3-886-763-00 (B) Spool
E 2

SECTION 6
ELECTRICAL PARTS LIST

5-2. **Note:**
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.


B 2.6 x 4
Case, shield; upper
Plate (A), shield
Plate (3), shield
Plate (2), shield
B 3 x 6
3-509-103-00 Ⓐ Spacer
3-831-441-XX Ⓐ Cushion (t = 0.5)
Plate (1), shield
1-520-399-00 Ⓗ Meter, TUNING/BATTERY (ME)
Bracket, frequency counter
Printed Circuit Board, jack
3-802-041-00 Ⓐ Washer
3-886-747-00 Ⓑ Knob, POWER
Bushing
Printed Circuit Board, counter
1-507-369-00 Ⓔ Minijack; record, earphone, EXT POWER IN DC 12 V (JI – 3)
Case, shield; lower
B 3 x 4
1-552-059-00 Ⓒ Switch, lever-slide; POWER (S1)
1-518-303-00 Ⓑ Lamp, pilot; LIGHT (PL)
9-911-863-XX Ⓔ Insulator
B 2.6 x 4
1-552-930-00 Ⓒ Switch, pushbutton; FREQ (S9)
1-552-744-00 Ⓖ Switch, pushbutton; FM/MW/AIR/CH1/CH2/CH3/MANUAL (S2–8)
1-226-161-00 Ⓒ Resistor, variable; 10 kΩ-D, VOLUME (RV7)
Supplied with variable resistor
B 3 x 4
P 2 x 4
B 3 x 4
Printed Circuit Board, power switch
Terminal
Printed Circuit Board, volume
X-3886-701-0 Ⓒ Knob Ass'y, preset tuning/TONE
Printed Circuit Board, switch
Printed Circuit Board, counter switch
Supplied with variable resistor
B 3 x 4
3-848-708-00 Ⓑ Spring, plate (SI0)
9-911-825-32 Ⓒ Cord, dial; 0.3mm dia.
Bracket, variable resistor
3-884-040-00 Ⓐ Contact (A) (S 10)
Eyelet, 1.5 x 2.5
Chassis Ass'y
B 3 x 4
Printed Circuit Board, battery check
Printed Circuit Board, antenna
3-881-923-00 Ⓐ Spring
1-226-510-00 Ⓑ Resistor, variable; 5 kΩ-A, TONE (RV2)
3-885-617-00 Ⓑ Drum (A), dial
3-880-990-00 Ⓐ Screw, 1.7 x 3
B 3 x 4
Printed Circuit Board, AF
1-226-288-00 Ⓑ Resistor, variable; 20 kΩ-B, SQUELCH (RV1)
Supplied with variable resistor
3-883-440-00 Ⓐ Drum (B), dial
Connector Soket
1-226-509-00 Ⓑ Resistor, variable; 100 kΩ-B, CH1–3 (RV3–5)
3-881-923-00 Ⓐ Spring
1-226-460-00 Ⓑ Resistor, variable 100 kΩ-B; MANUAL (RV6)
Plate (7), shield
PTP 3 x 5
3-880-990-00 Ⓐ Screw, 1.7 x 3
PTP 3 x 5
3-831-441-XX Ⓐ Cushion (t = 0.5)
4-857-437-00 Ⓐ Nut, 9 mm dia
Bracket, variable resistor
B 3 x 4
Case (2), shield
3-839-611-00 Ⓐ Pulley
B 3 x 4
Case (1), shield
Shaft, intermediate
N 4
Lid, shield case (1)
Case (6), shield
Plate (4), shield
B 3 x 4
Case (3), shield
1-401-773-00 Ⓒ MW Ferrite-rod Antenna (L4)
1-151-317-00 Ⓙ Capacitor, tuning (CV1, CT1-4)
Bracket, ferrite-rod antenna
Plate (5), shield
3-886-703-00 Ⓑ Pulley, intermediate
Printed Circuit Board, main
• A
3-886-762-00 Ⓑ Shaft, tuning
Chassis Ass'y, tuning shaft
• C
X-3886-716-0 Ⓒ Shaft Ass'y, tuning; including parts marked • A – C
• B
3-618-078-00 Ⓐ Stopper Ring
3-847-926-00 Ⓐ Spring Washer
3-886-763-00 Ⓑ Spool
E 2

- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.		Description
			SEMICONDUCTORS
			Transistors
⇒Q1	8-727-312-00	Ⓒ	2SK42-2
⇒Q2	8-729-803-04	Ⓑ	2SC930
⇒Q3	8-729-803-04	Ⓑ	2SC930
⇒Q4	8-729-671-14	Ⓑ	2SC710-14
⇒Q5	8-772-382-04	Ⓔ	2SK23A-824
⇒Q6–8	8-729-803-04	Ⓑ	2SC930
⇒Q9, 10	8-729-806-84	Ⓑ	2SC668
⇒Q11–13	8-729-803-04	Ⓑ	2SC930
⇒Q14	8-722-382-04	Ⓔ	2SK23A-824
⇒Q201, 202 ⇒Q207, 208	8-729-663-47	Ⓒ	2SC1364
⇒Q209	8-763-213-00	Ⓒ	2SA861
Q210	8-729-663-47	Ⓒ	2SC1364
⇒Q301	8-729-663-47	Ⓒ	2SC1364
⇒Q302	8-729-806-84	Ⓑ	2SC668
⇒Q303	8-729-612-77	Ⓑ	2SA1027R
⇒Q304	8-729-803-04	Ⓑ	2SC930
⇒Q305	8-729-612-77	Ⓑ	2SA1027R
⇒Q306	8-729-803-04	Ⓑ	2SC930
Q307–310	8-729-663-47	Ⓒ	2SC1364
			ICs
⇒IC1	8-759-601-61	Ⓔ	CX161A
IC2	8-751-620-00	Ⓗ	CX162
⇒IC201	8-759-157-52	Ⓕ	μPC575C
IC301	8-759-155-10	Ⓙ	μPB551C
IC302	8-759-902-90	Ⓕ	SN74LS290N
IC303	8-759-902-93	Ⓕ	SN74LS293N
IC304	8-759-648-25	Ⓝ	M54825P
			Diodes
D1–4	8-719-815-55	Ⓑ	1S1555
D5, 6	8-719-026-11	Ⓐ	1T261
⇒D7	8-719-026-11	Ⓐ	1T261
D8–11	8-719-815-55	Ⓑ	1S1555
⇒D12	8-719-713-93	Ⓑ	1S2139C
D13	8-719-026-11	Ⓐ	1T261
D14–18	8-719-815-55	Ⓑ	1S1555
⇒D19, 20	8-719-713-93	Ⓑ	1S2139C
D21	8-719-815-55	Ⓑ	1S1555
⇒D22	8-719-713-93	Ⓑ	1S2139C
⇒D23	8-719-026-11	Ⓐ	1T261
D24	8-719-815-55	Ⓑ	1S1555
⇒D201, 202	8-719-156-25	Ⓑ	RD5.6E
D203	8-719-815-55	Ⓑ	1S1555
⇒D204	8-719-156-25	Ⓑ	RD5.6E
⇒D205	8-719-147-77	Ⓑ	RD4.7E
⇒D306	8-719-905-12	Ⓛ	SL1512
			COILS
L1	1-407-186-XX	Ⓑ	4.7μH, microinductor
L2	1-405-798-00	Ⓑ	FM Rf
L3	1-405-846-00	Ⓑ	FM Osc
L4	1-401-773-00	Ⓒ	MW Ferrite-rod Ant
L5	1-405-655-00	Ⓑ	MW Osc
L6	1-420-935-00	Ⓑ	AIR Ant
L7	1-407-178-XX	Ⓑ	1μH, microinductor
L8	1-420-936-00	Ⓑ	AIR Rf
L9	1-420-952-00	Ⓐ	AIR Osc
L10, 11	1-407-178-XX	Ⓑ	1μH, microinductor
L202, 203	1-407-165-XX	Ⓑ	47μH, microinductor
L301, 302	1-407-169-XX	Ⓐ	100μH, microinductor
L303, 304	1-407-856-00	Ⓒ	Choke
			TRANSFORMERS
CFT	1-404-212-00	Ⓒ	AM IFT
IFT A1	1-404-100-00	Ⓑ	AM IFT
IFT AIR 1	1-403-872-00	Ⓑ	AIR IFT
IFT AIR 2	1-403-110-15	Ⓑ	AIR IFT
IFT AIR 3	1-404-023-00	Ⓑ	AIR IFT
IFT F1	1-403-872-00	Ⓑ	FM IFT
IFT F2	1-403-959-00	Ⓑ	FM IFT
IFT F3	1-403-953-00	Ⓑ	FM IFT

- ⇒ : Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

• Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

CAPACITORS

All capacitors are in μF and ceramic unless otherwise noted. 50WV or less are not indicated except for electrolytics. p : μμF, elect : electrolytic

Ref. No.	Part No.			
C1	1-161-001-00	Ⓐ 0.001		(semiconductor)
C2, 3	1-161-013-00	Ⓐ 0.01		(semiconductor)
C4	1-102-953-00	Ⓐ 18p		
C5	1-102-949-00	Ⓐ 12p		
C6	1-102-978-00	Ⓐ 220p		
C7	1-161-013-00	Ⓐ 0.01		(semiconductor)
C8	1-131-416-00	Ⓑ 1.5	16V	tantalum
C9–11	1-161-013-00	Ⓐ 0.01		(semiconductor)
C12	1-161-001-00	Ⓐ 0.001		(semiconductor)
C13	1-161-013-00	Ⓐ 0.01		(semiconductor)
C14	1-102-947-00	Ⓐ 10p		
C15	1-161-001-00	Ⓐ 0.001		(semiconductor)
C16–18	1-161-013-00	Ⓐ 0.01		(semiconductor)
C19–22	1-123-316-00	Ⓑ 10	16V	elect
C23	1-161-013-00	Ⓐ 0.01		(semiconductor)
C24	1-131-347-00	Ⓑ 1	16V	tantalum
C25, 26	1-161-017-00	Ⓐ 0.022		(semiconductor)
C27	1-123-316-00	Ⓑ 10	16V	elect
C28	1-131-422-00	Ⓑ 3.3	6.3V	tantalum
C29	1-161-013-00	Ⓐ 0.01		(semiconductor)
C30	1-161-006-00	Ⓐ 0.0022		(semiconductor)
C31	1-161-013-00	Ⓐ 0.01		(semiconductor)
C32	1-161-025-00	Ⓑ 0.1		(semiconductor)
C33	1-161-017-00	Ⓐ 0.022		(semiconductor)
C34	1-161-001-00	Ⓐ 0.001		(semiconductor)
C35	1-161-013-00	Ⓐ 0.01		(semiconductor)
C36	1-161-009-00	Ⓐ 0.0047		(semiconductor)
C37	1-102-935-00	Ⓐ 2p		
C40	1-161-001-00	Ⓐ 0.001		(semiconductor)
C41	1-102-936-00	Ⓐ 3p		
C44, 45	1-102-261-00	Ⓑ 8p		
C46	1-102-741-00	Ⓐ 1p		
C47	1-161-013-00	Ⓐ 0.01		(semiconductor)
C48	1-102-741-00	Ⓐ 1p		
C50	1-161-013-00	Ⓐ 0.01		(semiconductor)
C51	1-102-942-00	Ⓐ 5p		
C52–55	1-161-013-00	Ⓐ 0.01		(semiconductor)
C56, 57	1-161-017-00	Ⓐ 0.022		(semiconductor)
C58	1-102-942-00	Ⓐ 5p		
C59	1-102-865-00	Ⓐ 8p		
C60	1-161-013-00	Ⓐ 0.01		(semiconductor)
C61	1-102-958-00	Ⓐ 20p		
C62, 63	1-161-001-00	Ⓐ 0.001		(semiconductor)
C64	1-123-316-00	Ⓑ 10	16V	elect
C65, 66	1-161-013-00	Ⓐ 0.01		(semiconductor)
C69	1-102-949-00	Ⓐ 12p		
C70	1-161-001-00	Ⓐ 0.001		(semiconductor)
C71	1-161-013-00	Ⓐ 0.01		(semiconductor)
C72	1-161-001-00	Ⓐ 0.001		(semiconductor)
C73	1-161-013-00	Ⓐ 0.01		(semiconductor)
C74	1-161-001-00	Ⓐ 0.001		(semiconductor)
C75, 76	1-161-013-00	Ⓐ 0.01		(semiconductor)
C77–79	1-161-001-00	Ⓐ 0.001		(semiconductor)
C80	1-102-951-00	Ⓐ 15p		
C81, 82	1-161-013-00	Ⓐ 0.01		(semiconductor)
C83	1-123-352-00	Ⓑ 1	50V	elect
C84	1-161-013-00	Ⓐ 0.01		(semiconductor)
C85	1-102-106-00	Ⓐ 100p		
C86	1-161-017-00	Ⓐ 0.022		(semiconductor)
C87	1-102-962-00	Ⓐ 30p		
C88	1-161-017-00	Ⓐ 0.022		(semiconductor)
C89	1-102-110-00	Ⓐ 220p		
C90	1-101-880-00	Ⓐ 47p		
C91, 92	1-102-110-00	Ⓐ 220p		
C93	1-161-013-00	Ⓐ 0.01		(semiconductor)
C94	1-131-452-00	Ⓑ 0.15	16V	tantalum
C95, 96	1-161-013-00	Ⓐ 0.01		(semiconductor)
C97	1-131-218-00	Ⓐ 3.3	25V	tantalum
C100	1-131-347-00	Ⓑ 1	16V	tantalum
C101, 102	1-161-013-00	Ⓐ 0.01		(semiconductor)
C103	1-102-506-00	Ⓐ 7p		
C104	1-102-513-00	Ⓐ 18p		
C105	1-102-510-00	Ⓐ 12p		
C106	1-161-013-00	Ⓐ 0.01		(semiconductor)

- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.	Description		
C107	1-123-308-00	Ⓐ 220	10V	elect
C108, 109	1-102-934-00	Ⓐ 1p		
C110, 111	1-161-013-00	Ⓐ 0.01		(semiconductor)
C112	1-102-106-00	Ⓐ 100p		
C113	1-161-013-00	Ⓐ 0.01		(semiconductor)
C114	1-131-218-00	Ⓐ 3.3	25V	tantalum
C115, 116	1-102-261-00	Ⓑ 8p		
C201	1-123-353-00	Ⓑ 2.2	50V	elect
C202	1-123-316-00	Ⓑ 10	16V	elect
C204	1-123-354-00	Ⓑ 3.3	50V	elect
C205	1-123-328-00	Ⓑ 4.7	25V	elect
C206	1-161-013-00	Ⓐ 0.01		(semiconductor)
C207	1-123-319-00	Ⓑ 47	16V	elect
C208	1-123-317-00	Ⓑ 22	16V	elect
C209	1-102-821-00	Ⓐ 360p		
C210	1-123-323-00	Ⓑ 470	16V	elect
C211	1-101-798-00	Ⓐ 0.2		(semiconductor)
C212, 213	1-123-323-00	Ⓑ 470	16V	elect
C214	1-123-306-00	Ⓑ 47	10V	elect
C215	1-101-924-00	Ⓐ 0.022		
C216–218	1-123-307-00	Ⓐ 100	10V	elect
C221	1-123-296-00	Ⓑ 220	6.3V	elect
C222	1-123-297-00	Ⓑ 330	6.3V	elect
C224	1-101-924-00	Ⓐ 0.022		
C225	1-123-296-00	Ⓑ 220	6.3V	elect
C226	1-101-002-00	Ⓐ 0.0022		
C228	1-161-013-00	Ⓐ 0.01		(semiconductor)
C230	1-102-106-00	Ⓐ 100p		
C301	1-102-113-00	Ⓐ 390p		
C303	1-102-961-00	Ⓐ 27p		
C304	1-102-973-00	Ⓐ 100p		
C305	1-161-013-00	Ⓐ 0.01		(semiconductor)
C306, 307	1-102-959-00	Ⓐ 22p		
C308	1-161-013-00	Ⓐ 0.01		(semiconductor)
C309	1-102-947-00	Ⓐ 10p		
C310, 312	1-161-013-00	Ⓐ 0.01		(semiconductor)
C313	1-131-347-00	Ⓑ 1	16V	tantalum
C314–320	1-161-013-00	Ⓐ 0.01		(semiconductor)
C326	1-123-298-00	Ⓑ 470	6.3V	elect
C327	1-161-017-00	Ⓐ 0.022		(semiconductor)
C328	1-123-296-00	Ⓑ 220	6.3V	elect
C331	1-102-973-00	Ⓐ 100p		
CT5–7	1-141-203-00	Ⓑ Trimmer		
CT1–4, CV1	1-151-317-00	Ⓙ tuning		

RESISTORS

All resistors are in ohms. Common ¼W carbon resistors are omitted. Refer to the list on the last page for their part numbers.

⇒ R102	1-800-200-00	Ⓑ Thermistor, S-3k
RV1	1-226-288-00	Ⓑ 20k-B, variable; SQUELCH
RV2	1-226-510-00	Ⓑ 5k-A, variable; TONE
RV3–5	1-226-509-00	Ⓑ 100k-B; variable; CH1, CH2, CH3
RV6	1-226-460-00	Ⓑ 100k-B, variable; MANUAL
RV7	1-226-161-00	Ⓒ 10k-D, variable; VOLUME

SWITCHES

S1	1-552-059-00	Ⓒ Lever-slide; POWER
S2–8	1-552-744-00	Ⓖ Pushbutton; FM, MW, AIR, CH1, CH2, CH3, MANUAL
S9	1-552-930-00	Ⓒ Pushbutton; FREQ
S10	3-848-708-00	Ⓑ Spring, plate
	3-884-040-00	Ⓐ Contact (A) BATT CHECK

MISCELLANEOUS

BPF1	1-231-419-00	Ⓑ Filter, band pass; FM
BPF2	1-231-577-00	Ⓑ Filter, band pass; AIR
CF1–3	1-527-184-XX	Ⓑ Ceramic Filter, 10.7MHz
CR1	1-231-202-00	Ⓑ Encapsulated Component
J1–3	1-507-369-00	Ⓔ Minijack; record, earphone, EXT POWER IN DC 12V
ME	1-520-399-00	Ⓗ Meter, TUNING/BATTERY
PL	1-518-303-00	Ⓑ Lamp, pilot; LIGHT
SP	1-502-880-00	Ⓖ Speaker
TH1, 2	1-800-194-11	Ⓐ Thermister, S-90
X1	1-527-339-00	Ⓔ Crystal, 10.245MHz
X301	1-527-269-51	Ⓚ Crystal, 500kHz
	1-501-218-00	Ⓗ Telescopic Antenna

- ⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

ACCESSORIES AND PACKING MATERIALS

Part No.	*Description*
X-3886-106-0	Ⓕ Carring Belt Ass'y
3-701-625-00	Ⓐ Bag, plastic
3-701-629-00	Ⓐ Bag, plastic
3-881-644-00	Ⓑ Bag, plastic
3-882-772-00	Ⓒ Cushion, right
3-882-773-00	Ⓒ Cushion, left
3-882-781-00	Ⓑ Holder, battery
3-995-850-11	Ⓒ Manual, instruction (AEP, E model)
3-995-850-21	Manual, instruction (US model)

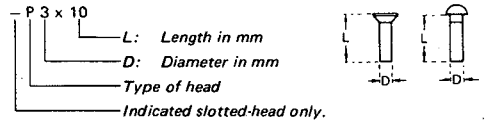
1/4 WATT CARBON RESISTORS Ⓐ

Note: Circled letter Ⓐ is applicable to European models only.

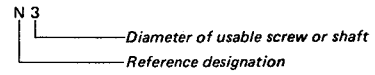
Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-576-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-577-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-578-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-579-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-580-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-581-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-582-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-583-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-584-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-585-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-586-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-587-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw:



Nut, Washer, Retaining ring:



Reference Designation	Shape	Description	Remarks
		SCREWS	
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		braizer-head screw	

Reference Designation	Shape	Description	Remarks
		SELF-TAPPING SCREWS	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	

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